

USSR

UDC 539.3.5

K
NOVIKOV, N. N., and KHIMENKO, M. V., Kiev State University imeni T. G. Shevchenko

"Effect of Oxygen and Hydrogen Impurities on Microhardness of Germanium"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 9, 1970, pp 143-146

Abstract: A detailed study was made of the role of oxygen and hydrogen in raising the microhardness of germanium, particularly the character of the dependence of the microhardness of germanium with gas impurities on temperature. The microhardness studies were performed on the {111} plane of brand GES non-dislocational antimony-doped germanium. All high-temperature measurements were carried out on a special vacuum device, which the article describes in detail. The results indicate that oxygen and hydrogen strongly affect the mechanical properties of germanium in the low-temperature region. Changes in the microhardness of germanium with the introduction of hydrogen and oxygen impurities are due to changes in the composition and properties of the surface oxide film, particularly a change in the interfacial surface energy of the germanium-oxide boundary as a result of the formation of certain oxygen-hydrogen compounds in the oxide film.

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UNCLASSIFIED
TITLE--CONDITIONS FOR THE USE OF CARBOXYL CONTAINING LATEX SKD-1 DURING
THE PREPARATION OF SYNTHETIC LEATHER -U-
TOP--(05)-YERKOVA, L.N., PERESNEV, V.N., MARTINSON, D.K., KOZHIKOVA,
T.S., KHINICH, D.S.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(2), 418-22
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--CARBOXYLATE RUBBER, LEATHER, RUBBER ADHESIVE, HYDROGEN
BONDING/(U)SKD1 SYNTHETIC RUBBER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REFL/FRAME--1992/0337
STEP NO--UR/0080/70/043/002/0418/0422
IRC ACCESSION NO--AP0111531
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--02OCT70

2/2 010

IRC ACCESSION NO--AP0111531

STRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE CAUSES FOR INCREASED RIGIDITY OF ARTIFICIAL LEATHER (I) BONDED WITH SKD-1 LATEX (II) WERE STUDIED. THE RIGIDITY OF I INCREASED WITH THE CHARGE CARRIED BY THE CATION OF THE COAGULATING ELECTROLYTE (MOST RIGID I WAS OBTAINED WHEN II WAS COAGULATED WITH AL SUB2(SO SUB4)SUB3), AND AT HIGH PH (AT PH 4.5 THE RIGIDITY WAS 10,000-5,000 G), PRESUMABLY DUE TO THE COPPTN. OF II WITH AL(OH)SUB3. RIGID POLYMERS RESULTED FOLLOWING COAGULATION WITH NACL (AT HIGH PH), APPARENTLY DUE TO THE FORMATION OF H BONDS BETWEEN THE OH AND THE CO SUB2 H GROUPS OF II. LEAST RIGID I WERE OBTAINED AT PH IS LESS THAN 4.5 AND WITH NACL COAGULANT.

UNCLASSIFIED

Khimich, Yu.P.

*Delivered Translation of
Metallurgy, No. 58611
30 March 1973 - From File
Metallurgy & Metallurgy
Vol. 34, no. 6, 1972*

UDC 669.017.3.519.4

STUDY OF THE PROCESS OF STRENGTHENING SOLID
BODIES BY MEANS OF NUCLEAR GAMMA-RESONANCE

G. N. Bologozhnikov, V. N. Gerasimov, O. G. Sokolov, and Yu. P. Khimich,
Leningrad State University named A. A. Zhdanov, submitted for press 28-Sep-
tember 1971
pages 1284-1286

This work was attempted for the purpose of studying the physical
processes responsible for the strengthening of real bodies, in particular
alloys, by using the method of nuclear gamma-resonance (NAGR).

The application of nuclear gamma-spectroscopy for these purposes
seems to be very justified to us because of its great sensitivity to the phase
composition of the specimens. Aside from this, the strengthening of solids
is associated in one way or another with the change in the structural state
of the crystalline lattice. In particular with the change of the degree of
its defect occurrence, which must be felt on the magnitude of the resonance
absorption factor.

For the investigation, iron-vanadium steel was selected (15% V,
0.4% C) and steel of brand 20KhN1MF (0.2% C, 1% Ni, 1% Mn, Cr < 1%,
V < 1%), which may be strengthened not only by the hardening method,
by cold rolling but also as a result of the processes of secondary hardening,
caused by the precipitation of dispersed special carbides in the tempering
of hardened specimens.

The experiments were conducted on specimens which had passed
through various types of treatment for the purpose of changing their
strength properties: cold-rolled (degree of deformation 75%); hardened at
1100 and 850°C; and tempered at 900°. Specimens hardened at 850° were
subjected to further tempering at temperatures of 400, 550, and 650°, in
which the processes of secondary hardening occur.

The spectra were recorded by a 800-channel analyzer of the Mossbauer spectrometer of the electrodynamic type, with a constant acceleration, and were processed on an EVM (electronic computer).

All the spectra are Zeeman groups of six, or, more accurately, by superposition of several groups of six, corresponding to various states of the nearest surroundings of iron atoms. At 1% vanadium, states with only one replacement atom in the nearest coordinate spheres have a non-disappearing probability. According to data from reference [1], the presence of one atom of vanadium in the first two spheres decreases the field in the iron by approximately 8%, and in the third sphere increases it by 1.6%. Thus, ignoring the effect of the third and subsequent spheres, in simplified phase analysis we may consider the spectrum to be consisting of two groups of six. In this case we will not consider less than 1% of iron atoms, having two or more atoms of vanadium in the first two coordination spheres. The reasonable values of χ^2 obtained by us in the processing of the spectra on the EVM (usually of the order of the number of points of the experimental spectrum) also show the permissibility of such an approximation.

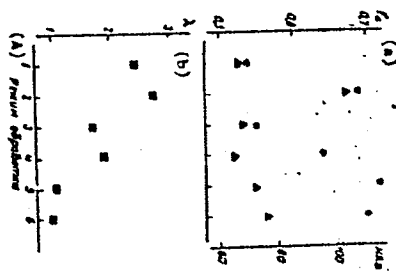


Figure 1. Dependences of the magnitude of the resonance absorption factor I_0 (a) and the HRB hardness (A) upon the form of treatment of the specimen (a). The comparative dependence of λ (b) of the degree of asymmetry of the lines of the spectrum upon the form of the specimen is also shown (b). Along the abscissa axis are plotted: (1) annealing at 900°C; (2), (3) hardening at 1100 and 850°C; (4)-(6) tempering at 400, 550, and 650°C. (A) treatment regime.

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UDC 678.675.046.32.01:537

KHIMCHENKO, YU. I., MELESHEVICH, A. P., KOMPANIYETS, V. A., and RADKEVICH, L. S.

"Effect of γ -Radiation on the Electric Properties of Metal Polymers Based on Polycaproamide"

Moscow, Plasticheskiye Massy, No 5, 1973, pp 27-29

Abstract: A study was made of the results of investigating the effect of γ -radiation on the electric properties of polycaproamide filled with highly dispersed metals. The electrical conductivity of the metal polymers depends essentially on the radiation dosage. The greatest increase in electrical conductivity is observed for polycaproamide filled with copper or nickel; the electrical conductivity of polycaproamide with iron or cobalt depends on the radiation dosage to a lesser degree. The variations in electrical conductivity are caused by the difference in supramolecular structures of the polymer in contact with different metals. By variation of the electrical conductivity in combination with ionizing radiation, it is possible to estimate the uniformity of the structure of the polymer compounds with electrically conducting fillers.

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USSR

UDC: 621.375.82

NIKOLAYEV, V. K., KHIMICHEV, Yu. V., VALITOV, R. A., MADEZHNIKIN, Yu. M.

"A Device for Measuring High Levels of Laser Pulse Emission Energy With Large Beam Diameters"

Radiotekhnika. Resp. mezhved. temat. nauch.-tekhn. sb. (Radio Engineering. Republic Interdepartmental Thematic Scientific and Technical Collection), 1973, vyp. 25, pp 8-14 (from RZh-Fizika, No 8, Aug 73, abstract No 8D1136 by the authors)

Translation: The paper describes the characteristics and design of a pondermotive device for measuring the pulse energy of high-level transmitted emission. Problems of calibrating the meter are considered. Some components of measurement errors are evaluated. Bibliography of 10 titles.

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040
UNCLASSIFIED
TITLE--HYDROXYETHYL CYANOETHYL CELLULOSE -U-
PROCESSING DATE--23OCT70
AUTHOR--(05)-KATALEVSKAYA, I.V., YERMILOVA, I.I., SMIRNOVA, G.N., KHIN,
N.N., PROKOFYEVA, M.V.
COUNTRY OF INFO--USSR
SOURCE--PLAST. MASSY 1970, (2), 23-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--HYDROXYL RADICAL, CELLULOSE RESIN, CYANIDE, CHEMICAL
SYNTHESIS, POLYMER, TRANSITION TEMPERATURE, PLASTIC FILM, TENSILE
STRENGTH, DIELECTRIC PROPERTY, ADHESION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0673
STEP NO--UR/0191/70/000/002/0023/0025
CIRC ACCESSION NO--AP0119581
UNCLASSIFIED

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CIRC ACCESSION NO--AP0119581

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SYNTHESIS AND PHYSICOCHEM. PROPERTIES OF THE TITLE POLYMER (I) (USED AS A BINDER FOR ELECTROLUMINOPHORS) WERE STUDIED. THE MOST EFFECTIVE METHOD OF PREPG. I INVOLVED CYANOETHYLATION OF TECH. HYDROXYETHYL CELLULOSE (II) (3.5 MOLES OF CH SUB2:CHCN-ELEMENTARY UNIT OF II) AT 30DEGREES FOR 3 HR. I HAD A GLASS TRANSITION TEMP. OF SIMILAR TO 40DEGREES AND A VISCOELASTIC TRANSITION TEMP. OF 100DEGREES. COLORLESS AND TRANSPARENT FILMS WERE PREPD. FROM SOLNS. OF I. THE FILMS EXHIBITED HIGH TENSILE STRENGTH, RELATIVE ELONGATION AT BREAK, AND GOOD DIELEC. PROPERTIES, AND WERE READILY BONDED TO GLASS, METALS, AND OTHER MATERIALS.

UNCLASSIFIED

Extraction and Refining

UDC 669.243.82:66.061.5

USSR

NAFTANOVICH, M. D., and KHEIFETS, V. L.

"Extraction Processes in the Nickel Industry"

Moscow, Tsvetnyye Metally, No 1, Jan 74, pp 14-21

Abstract: A review is presented of Soviet and Western research and experimental-industrial work on Ni extraction processes on their industrial adoption. Tabulated data of manufactured extractants show that the Soviet assortment is poorer than that of Western firms. The principal technologies of plants applying Cu extraction by α -oxyoximes (LIX-64N) in combination with electrolysis are presented, and Western firms using this method are listed. Another method, used by the Hydrometallurgical Plant of the Falconbridge firm, is discussed. Canadian, US (Inco, Pyrites), and Swedish (Goteborg University) developments are considered. The adoption of extraction in the USSR is considered expedient in the construction of new plants. Technologies for the production of electrolytic Co with use of metal extraction by C_7 - C_9 fatty acids (Noril'sk Metallurgical-Mining Combine) and by trioctylammonium and the schemata of refining sulfate-chloride nickel electrolyte, of Zn extraction, 1/2

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NAFTANOVICH, M. L., and KHEYFETS, V. L., Tsvetnyye Metally, No 1, Jan 74,
pp 14-21

and of Cu extraction are discussed. The problem of developing selective
extractants for Ni extraction from Co solutions and for Co extraction from
solutions of Ni sulfate is emphasized. Seven figures, one table, 21 biblio-
graphic references.

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- 19 -

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KHINCHIN, A.S.

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Soviet Inventions Illustrated, Section I Chemical, Derwent,

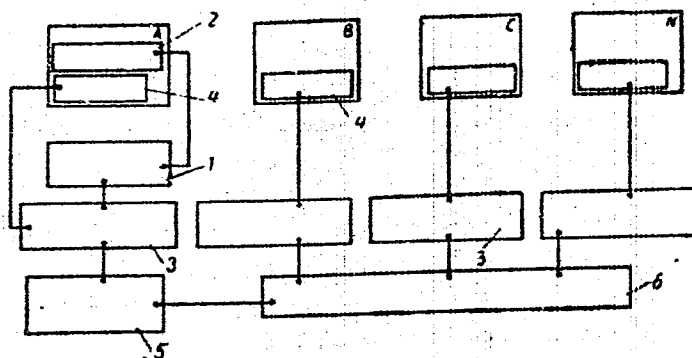
241058 REGULATION OF FORCED COOLING OF INGOTS in
moulds, already registered under No. 132421,
is hereby further improved, the present proposal
offering a method of instrumented forced cooling of
the first ingot of a series, the rest of the
series being handled by an automatic programmed
circuit without recourse to further thermocouples.
The diagram shows 1, a self-registering instrument
to which are connected thermocouples 2, installed in
ingot A, controlling the feed of coolant by auxiliary
devices 3 to cooling elements 4 (e.g. tubes). A
memory device 5 stores the programme on cards, tape,
etc. and arranges to distribute through unit 6 the
appropriate coolant supply to other ingots in the
required order and for the required duration
according to the regime applied to the first, without
further use of individual sensing devices. This
improvement to No. 132421 constitutes a marked
simplification of the process and offers greater
reliability.

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29.1.68 as 1214479/22-2. Add to 132421. A.S. KHINCHIN,
CASTING MACHINERY & TECHNOLOGY INST. (18.8.69) Bul 13/
1.4.69. Class 421, 31b². Int.Cl.G Olk, H Olm, B 22d.

19741958

AA0040457

Nauchno - Issledovatel'skiy Institut Liteynogo Mashinostroyeniya i
Liteynoy Tekhnologii

19741959

USSR

UDC519.21

GNEDENKO, B. V., KHINCHIN, A. Ya.

"Elementary Introduction to the Theory of Probabilities"

Elementarnoye Vv edeniye V Teoriyu Veroyatnoystey, [English Version Above],
7th Edition, Supplemented, Moscow, Nauka Press, 1970, 167 pages, (Translated
from Referativnyy Zhurnal Kibernetika, No. 5, 1971, Abstract No. 5V126 K).

Translation: The seventh, supplemented edition of the widely known book by
the authors (RZhMat. 1962, 9V36).

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USSR

UDC 539.3:534.1

PETRASHEN', G. I., and KHINEN, E. F.

"Concerning Conditions of the Application of Engineering Equations of Oscillations of Nonideally Elastic Plates"

Leningrad, Vopr. Dinamich. Teorii Raspostr. Seymich. Voln --- Sbornik (Questions of the Dynamic Theory of Seismic Wave Propagation --- Collection of Works), Nauka, No 11, 1971, pp 48-56 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2V232 by Yu. K. Konenkov)

Translation: An investigation is made of refined equations of thin elastic plates. Instead of the squares of the transverse velocity and the longitudinal velocity of propagation, integral operators with respect to time with a difference kernel which characterize the losses, are introduced into the exact equations of motion of the layer. Approximate differential equations are presented, which correspond to expansion of the operator with respect to thickness, and the limitations upon the influence parameters are indicated, in such a manner that the difference between the exact solution and the approximate solution be smaller than a preassigned value.

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Metrology, Mapping, Graphics

USSR

UDC 538.22.082.7

KHINEV, N. I., KULINICH, A. G., TSYNKUSH, P. V.

"Electroluminescent Method of Measurement of Magnetostriction"

Moscow, Zavodskaya Laboratoriya, No 12, 1972, pp 1492-1494.

Abstract: A method is suggested for measurement of the magnetostriction of ferromagnetic materials in a dynamic mode using electroluminescent sensors. The sensitivity of an installation operating on this principle is no less than existing tensometric and mechanical-optical devices.

Lasers and Masers

USSR

UDC 621.391.63

KHINRIKUS, KH.V., AFINOGENOV, V.N.

"Depolarization Of Laser Emission In Optical Channel"

Izv. VUZ:Radioelektronika, Vol XV, No 12, Dec 1972, pp 1501-1506

Abstract: The problem is considered of the effect of atmospheric turbulence on the polarization in an open optical communication line which consists of a transmitting antenna with a directive mirror, the atmosphere, and an optical receiving antenna. An experimental investigation of the effects of depolarization was conducted on an optical communication line 5.2 km long. A LG-36 helium-neon laser operating at a 0.63 micron wavelength was used as the transmitter. A FEU-51 photomultiplier served as the receiving element in the photoreceiver. Depolarization was measured at various elements of the optical communication line. Depolarization of the output emission of the laser amounted to -37 db. It is shown that depolarization at the optical antennas depends on the distribution of intensity in the laser emission with reference to the center of the directional diagram of the antennas. 3 fig. 9 ref. Received by editors, 10 January 1972.

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USSR

UDC: 621.73.042

GENERSON, I. G., KHINSKIY, P. D., TOKAREV, V. N., LIBMAN, P. M., KRYLOV, V. N.

"New Technology for Production of Forgings of Large Turbine Wheels"

Kuznechno-Shtampovochnoye Proizvodstvo, No 1, Jan 73, pp 3-7.

Abstract: The Neva Machine Building Plant imeni V. I. Lenin has developed a new technology for the production of forgings of large turbine discs, assuring high metal quality. The technological features of the new process are as follows: 1. The discs are made of steel melted in an arc electric furnace by the method of deep decarburization. 2. During pouring of the steel into ingots of relatively small size, designed to yield one disc per ingot, the steel is evacuated. 3. An increased volume of metal is removed from the axial zone of the ingot. The primary stages of experimental work in production of turbine discs by the new technological process and results of their examination are presented.

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UDC: 681.3.06:51

PAGAVA, I. S., KHINTIBIDZE, M. G.

"On Using Computer Technology for Information Retrieval"

Tr. Vychisl. tsentra AN GruzSSR (Works of the Computer Center, Academy of Sciences of the Georgian SSR), 1970, 10, No 2, pp 35-42 (from FZh-Kibernetika, No 7, Jul 71, Abstract No 7V721)

Translation: The authors consider a retrieval algorithm for chemical compounds in linear code, and implementation of this algorithm on the BESM-2 digital computer at the computer center of the Academy of Sciences of the Georgian SSR. The linear code is a set of digits, letters, symbols and elements in a periodic system. There are 146 symbols altogether in the linear code used to record chemical compounds. Each linear code for a chemical compound is recorded on a single card. The ordinal number for this compound is recorded on the same card. The aggregate of these cards represents the search pattern of the documents. The linear code of the document consists of a limit sign and a certain number of groups of symbols which are separated from each other by the

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PAGAVA, I. S., KHINTIBIDZE, M. G.

symbol ":". These groups are called fragments of the linear code. A linear code may contain a maximum of ten fragments. The fragment in turn is an aggregate of a maximum of 70 symbols. The number of fragments and the number of symbols in a fragment is unlimited [sic].

The documents are stored in a file which is supplemented in time.

Another form of linear code for a chemical compound is a retrieval instruction or a so-called interrogation which by analogy with the document is recorded on a single card with its ordinal number.

1/2 005 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--MUSLEM MEASURES AND WEIGHTS WITH CONVERSION INTO THE METRIC SYSTEM,
DATA ON METROLOGY OF MEDIEVAL MIDDLE ASIA -U-
AUTHOR-(02)-KHINTS, V., DAVODOVICH, YE.A.

COUNTRY OF INFO--USSR

SOURCE--MUSUL'MANSKIYE MERY I VESA S PEREVODOM V METRICHESKIYU SISTEMU.
MATERIALY (SL; 2139) PO METROLOGII SREDNEVEKOVY SREDNEY AZII. MOSCOW,
DATE PUBLISHED--70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--MEASUREMENT, METROLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1993/1995

STEP NO--UR/0000/70/000/000/0001/0146

CIRC ACCESSION NO--AM0114390

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AM0114390

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: KHINTS, V. MOSLEM MEASURES AND WEIGHTS WITH CONVERSION INTO THE METRIC SYSTEM PREFACE OF THE AUTHOR TO THE RUSSIAN EDITION, 9. PREFACE OF THE AUTHOR TO THE GERMAN EDITION, 10. I WEIGHT MEASURES, 11. II VOLUME MEASURES, 45. III LENGTH MEASURES, 62. IV SURFACE MEASURES, 73. DAVIDOVICH, YE. A. DATA ON METROLOGY OF MEDIEVAL MIDDLE ASIA I WEIGHT AND VOLUME MEASURES, 79. II LENGTH MEASURES, 109. III SURFACE MEASURES, 122. BIBLIOGRAPHY AND ABBREVIATIONS, 132. ADDITIONAL LITERATURE, 141. ALPHABETICAL LIST OF MEASURES, 144. THE BOOK CONTAINS TWO CONTENT RELATED WORKS. THE FIRST WORK WRITTEN BY A WELL KNOWN GERMAN ORIENTALIST REPRESENTS A MANUAL ON ALL BASIC MEASURES WHICH EXISTED IN MOSLEM COUNTRIES (FROM MAROCCO TO INDIA) SINCE THE FIRST CENTURIES OF THE ISLAM. THE SECOND WORK WRITTEN BY YE. A. DAVIDOVICH REPRESENTS A SUPPLEMENT TO KHINT'S MANUAL; IT DEALS WITH METROLOGY OF MEDIEVAL MIDDLE ASIA.

UNCLASSIFIED

USSR

UDC.51:621.391

KHION, YA.

"On the Integral Properties of the Vertices of a Convex Polygon"

Uch. zap. Tartus. un-ta (Educational Notes of Tartus University), No 305, 1972, pp 259 - 268 (abstracts in Est onian and English) (from RZh Matematika, No 11, Nov 73, abstract No 11 V667)

Translation: It is known that the solution of an integral linear programming (TsLP) problem presents difficulties because the basic plans of the corresponding linear programming problem do not always have integral coordinates. It is therefore of interest to determine which convex polygons have all vertices (partially) integral. Necessary and sufficient conditions of Hoffman and Kraskal for the matrix coefficients of a linear programming problem are known; when these are met, the vertices of the polygon will be integral for any free members. In this work the integral quality of the vertices of a polygon with a fixed matrix and fixed free members is investigated.

For a convex polygon

$$\sum_{j=1}^n a_{ij}x_j = a_{i0}, i=1,2,\dots,m, \quad (1)$$

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KHION, YA., Uch. zap. Tartus. un-ta, No 305, 1972, pp 259 - 268

$$x_j \geq 0, j=1,2,\dots,n. \quad (2)$$

All coefficients a_{ij} , b_i are integral. The rank of the matrix $A = (a_{ij}) = m$. The vector X is called J -integral by the author if x_j for it is an integer for any $j \in J$ (where $J \subset \{1,2,\dots,n\}$). The minor $M(j_1, \dots, j_m)$ of the m^{th} order of matrix A and all matrices conjugate to it (i.e., produced from it by replacing one of the columns with a column of free members): $M(0, j_2, \dots, j_m)$, $M(j_1, 0, j_3, \dots, j_m)$, ..., $M(j_1, \dots, j_{m-1}, 0)$. The term J -conjugate refers to those conjugate minors in which a column with an index from J has replaced the free members. The minor $M=M(j_1, \dots, j_m)$ of the matrix A is called a basis matrix for system (1) if M is not equal to 0 and it has the same sign as all its conjugates.

Theorem 1. All the vertices of the polygon (1) - (2) are J -integral if and only if all the basis minors of the polygon are divisors of all their J -conjugates.

It is easy to see that for system (1) - (2) there is a natural number C , such that for the polygons

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KHION, YA, Uch. zap. Tartus. un-ta, No 305, 1972, pp 259 - 268

$$\sum_{j=1}^n a_{ij}x_j = b_i, \quad i=1, \dots, m, \quad (4)$$

$$x_j \geq 0, \quad j=1, \dots, n, \quad (5)$$

all the vertices are integral. It is clear that $C = C_J(A, B)$, where

$$B = \begin{pmatrix} a_{10} \\ \vdots \\ a_{m0} \end{pmatrix}. \quad \text{Let } d_J(M, B) \text{ be the greatest common divisor of}$$

all the J-conjugate minors for M. $C_J(M, B)$ is the smallest natural member which when multiplied by $d_J(M, B)$ will be divisible by M.

Theorem 2. The number $C_J(A, B)$ is equal to the N.O.K. (greatest common factor) of the member $C_J(M, B)$, taken over all the basic minors M of matrix A.

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Theorem 5. All the vertices of the polygon

$$\sum_{j=1}^n a_{ij}x_j \leq b_i, i=1, \dots, m; x_j \geq 0, j=1, \dots, n)$$

will be J-integral if and only if all the basis minors (of any order) of matrix A are divisors of all their J-conjugates.

Abstract by Yu. Finkel'shteyn.

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USSR

UDC: 51

KHION, Ya. V.

"The Problem of Optimum Sale of Goods"

Tr. 4-y Zimm. shkoly po mat. programmir. i smezh. voprosam, 1971, vyp. 2
(Works of the Fourth Winter School on Mathematical Programming and Related
Problems, 1971, vyp. 2), Moscow, 1971, pp 210-215 (from RZh-Kibernetika, No
6, Jun 72, Abstract No 6V424)

Translation: Let there be a plant which produces a single good over the
course of a certain period made up of t days; on the i -th day, the plant

may send a_i product units to customers ($i=1, \dots, t$; $\sum_{i=1}^t a_i \in A_t$). Plant custo-

mers are divided into three groups: 1) the j -th customer of the first group
is to receive the product once per month in the amount of c_j ($j=1, \dots, n_1$);
2) the k -th customer of the second group is to receive the product twice per
month in amounts of c_k^1 and c_k^2 ($k=n_1+1, \dots, n_1+n_2$); 3) the l -th customer
of the third group is to receive the product three times per month in
amounts of c_l^1 , c_l^2 and c_l^3 . Goods can be sent to each of the customers only
on certain days of the period, which are assigned by introducing the matrix $\{d_{ij}\}$

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Acc. Nr: **AA0108699**

KHIRDZHIEV S.G.

Ref. Code:

Abstracting Service:

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Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent, 3/75

241222 HYDRAULIC PRESS comprises frame 1, column 2, slide 3, head 4, fixed traverse 5 with tiebars 6, ejector rams 7, and its supporting movable traverse 8. The latter is attached to tail end 9 sliding in guides 10 of the fixed traverse, so that it can take up eccentric loads resulting in tension of the tiebars. The traverse carries out its operating stroke when fluid is fed into cylinders 11, whereas cylinders 12 ensure the return stroke. The frame holds table 13 with nests for inserts 14, the removal of which causes eccentric loading of traverse 8, and the rams 7 may then be used as eccentric pressing units.

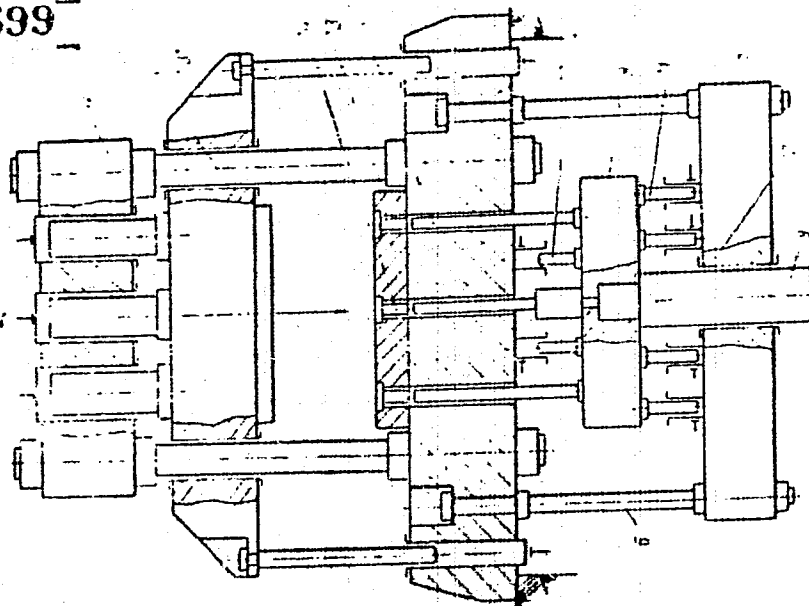
18.8:67. as 1182432/25-27, SHCHUKIN, V.V.,
KERZHKOVSII, E.I. and S.G. KHIRDZHIEV et al.
(9.9.69) Bul. 13/1.4.69. Class 58a, Int. Cl. B 30b.

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CK 18

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A A0108699



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19900442

CK

AA0108699-

AUTHORS: Shchukin, V. V.; Kerzhkovskiy, E. I.; Khirdzhiyev,
S. G.; Baranov, L. F.

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19900443

USSR

UDC 621.382.5

MARTYNOVSKIY, V.S., NAYER, V.A., KHIRICH, I.YA., KRAVOCHENKO, P.N.

"Low-Temperature Thermoelectric Microrefrigerator"

V sb. Niskotemperaturn. termoelektrich. materialy (Low-Temperature Thermoelectric Materials--Collection Of Works), Fishinev, 1970, pp 165-168 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5B191)

Translation: The construction is described of a 3-stage thermoelectric micro-refrigerator. Electric power supply of the thermopile was accomplished by a circuit with current splitting. Consumable power did not exceed 20 watt. The device makes it possible to reduce the temperature to 122 degrees with a heat transfer temperature of 303° K. 2 ill. 1 tab. 2 ref. Author's Abstract.

1/1

USSR

UDC 535.37:548.736

SHALIMOVA, K. V., KHIRIN, V. N.

"The Relative Quantum Yield of Green Photoluminescence by Cadmium Sulfide in the Case of a Complex Light-Absorption Mechanism"

Izvestiya Vysshikh Uchebnykh Zavedeniy Fizika, No 6, 1970, pp 54-59

Abstract: Keeping in mind the complex light-absorption mechanism in the spectral region of 4580-4910 Å, the authors consider two quantum yields of the green photoluminescence of polycrystalline films of cadmium sulfide. One of them is determined by intrinsic interzonal absorption, the other is determined by absorption in superstoichiometrically excess atoms of cadmium. A calculation of these quantum yields at 77° K is made for two groups of polycrystalline films, and it is shown that the spectral distribution of neither of these yields contains selective bands that are characteristic of spectra of the absorption, reflection, and excitation of green radiation.

1/1

- 79 -

Corrosion

USSR

UDC 620.193.5:019.39

KHIRNYY, YU. M., and SOLODOVNIKOV, A. P.

"Effect of Increasing the Corrosion Resistance of Metals Irradiated with Helium Ions"

Moscow, Doklady Akademii Nauk SSR, Vol 214, No 1, Jan/Feb 74, pp 82-83

Abstract: Experiments were conducted to test the hypothesis that a metal has increased corrosion resistance after being irradiated with helium ions due to the helium atoms forming a surface barrier which prevents the sorption of other gases from the surrounding medium. Samples of Fe, Cu, Al, and Ce were compared before and after helium-atom irradiation from a beam of helium ions at 20 kev. Accelerated tests were conducted with Ce where the Ce sample was placed in a container which was evacuated to a pressure of 0.1 torr and filled with helium to a pressure of 1.5 atom. The container was heated to a specified temperature and then filled with hydrogen. Corrosion initiation was determined by the start of the drop in hydrogen pressure within some time frame. Data from this test showed that helium-irradiated Ce has increased corrosion resistance and the general conclusion was that helium irradiation of metals can increase corrosion resistance. Two figures, one bibliographic reference,

1/1

USSR

UDC 535.215.1

FIALKOVSKAYA, O.V., KHIRUNENKO, L.I.

"Photoconductivity And Phototransfer Of Charge In CdS Crystals Activated By Dysprosium"

V sb. Probl. fiz. soyedineniy A^{II}B^{VI}. T. 1 (Problems Of The Physics Of A^{II}B^{VI} Compounds. Part 1. -- Collection Of Works), Vil'nyus, 1972, pp 77-81 (from RZh:Elektronika i yeye primeneniya, No 11, Nov 1972, Abstract No 11B295)

Translation: The effect was studied of γ -irradiation and illumination on the photoconductivity and absorption spectrum of CdS-Dy crystals. The photoconductivity (PC) was measured in a vacuum at 293 and 77° K. Together with the maximums inherent in pure CdS, maximums exist on the curves of the spectral distribution of the PC of nonirradiated CdS-Dy crystals, caused by the presence of Dy the position of which corresponds to the positions of the maximums of absorption of Dy³⁺. After γ -irradiation by doses of 2×10^6 r, the maximums of PC caused by Dy³⁺ (12 200 cm⁻¹) are decreased and the maximums characteristics for Dy²⁺ (14 250 cm⁻¹) are increased; at the same time, at the spectrum interval 5100--7000 cm⁻¹ a negative PC develops. An analogous effect was observed during illumination for 15-20 hours in the band Dy³⁺ (12 200 cm⁻¹). The reverse transfer of the charge with breakdown of Dy²⁺ and formation of Dy³⁺ is accomplished by illumination in band Dy²⁺ (14 250 cm⁻¹). 2 ill. 4 ref. I.V.

1/1

117 -

1/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--MONOSACCHARIDE HYDROGENATION CATALYST --U-
AUTHOR--(04)-SOKOLSKIY, D.V., YUNUSOV, U.I., BIZHANOV, F.B., KHISAMETDINOV,
A.M.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R 266,733
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SACCHARIDE, PATENT, CATALYTIC HYDROGENATION, CATALYST, NICKEL,
ALUMINUM, IRON
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3004/1792 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0132058
UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0132058
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A HYDROGENATION CATALYST FOR
MONOSACCHARIDES CONSISTED OF NI, AL, AND FE, WITH 2 WT. PERCENT MN
ADDED. FACILITY: KAZAKH CHEMICAL TECHNOLOGICAL INSTITUTE.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CATALYTIC AND ADSORPTION PROPERTIES OF MIXED CATALYSTS BASED ON
NICKEL -U-
AUTHOR--(05)--KASIMOVA, G.I., BIZHANOV, F.B., SOKOLHSKIY, D.V., POPOV, N.I.,
KHISAMEIDINOV, Z.K.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK KAZ. SSR, SER. KHIM. 1970, 20(2), 20-4
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CATALYST ACTIVITY, NICKEL, MAGNESIUM OXIDE, HYDROGENATION,
ORGANIC NITRO COMPOUND, PHENOL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/2029 STEP NO--UR/0360/70/020/002/0020/0024
CIRC ACCESSION NO--AP0125617
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125617

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT WAS STUDIED OF MGO ADDNS. ON THE ACTIVITY OF A NI CATALYST. THE CARRIER:NI RATIO WAS CONST., 4:1. THE ACTIVITY OF THE NI CATALYSTS FOR THE HYDROGENATION OF Q-NITROPHENOL INCREASED 2.5 TIMES UPON USING A CARRIER AND FOR THE ADDN. OF MGO; THE OPTIMUM ADDN. BEING NI:MGO EQUALS 1:0.2. A COMPARISON OF THE CATALYTIC AND ADSORPTION PROPERTIES SHOWED THAT THEIR CHANGES ARE SYMBATIC. THE MAX. ACTIVITY WAS OBTAINED FOR SAMPLES REDUCED AT 250DEGREES FOR NI, AT 400-500DEGREES FOR THE NI:CLAY EQUALS 1:4 CATALYST, AND AT 350-400DEGREES FOR THE NI:MGO CATALYST. FOR THE PROMOTED CATALYST THE REACTION IS LIMITED BY THE ACTIVATION OF THE UNSATD. COMPO. FACILITY: KAZ. KHIM.-TEKHNOL. INST., CHIMKENT, USSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--INTENSITY OF SPREADING OF DIPHTHERIAL BACTERIOCARRIER IN RELATION
TO CONDITIONS AND DURATION OF POPULATION COMMUNICATION -U-
AUTHOR--(CB)--KHISAMUTDINOV, A.G., RUZAL, G.I., MUKHUTDINOV, I.A.

COUNTRY OF INFO--USSR

SOURCE--KAZAN MED ZH 1. 52-53. 1970

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIPHTHERIA, DISEASE INCIDENCE, DISEASE CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO--FD70/605014/C07 STEP NO--UR/0392/70/001/000/0052/0053

CIRC ACCESSION NO--APC140477

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0140477

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPREADING DIPHTHERIA BACILLI AMONG STUDENTS OF BOARDING AND REGULAR SCHOOLS WAS STUDIED. CONDITIONS AND DURATION OF COMMUNICATION OF THE POPULATION, DETERMINED BY THE TYPE OF SCHOOL, SHOWED DIRECT EFFECT ON SPREAD INTENSITY OF THE DIPHTHERIA PATHOGEN. DIPHTHERIA CIRCULATION WAS HIGHER AMONG THE STUDENTS OF BOARDING SCHOOLS, IN WHICH CLOSE AND PROLONGED CONTACT AND A COMMON DIET EXISTED.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--DEPENDENCE OF THE DURATION OF DIPHTHERIA CARRIER STATE UPON THE
LEVEL OF ANTITOXIC IMMUNITY -U-
AUTHOR-(02)-KHISAMUTDINOV, A.G., RUZAL, G.I.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 5,
PP 103-105
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--DIPHTHERIA, ANTITOXIN, IMMUNOLOGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1994/0162 STEP NO--UR/0016/70/000/005/0103/0105
CIRC ACCESSION NO--AP0114558
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114558

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RELATIONSHIP OF THE DURATION OF DIPHTHERIA CARRIER STATE TO THE LEVEL OF ANTITOXIC IMMUNITY WAS STUDIED. THE DURATION OF THE CARRIER STATE PROVED TO BE IN REVERSE RELATIONSHIP TO THE IMMUNITY LEVEL, AND THE ACCEPTED "PROTECTIVE" TITRE HAD NO SIGNIFICANT EFFECT ON REDUCTION OF THE PERIODS OF CARRIER STATE. IT IS RECOMMENDED TO REVISE THE "PROTECTIVE" TITRE IN THE DIRECTION OF ITS INCREASE. FACILITY: KAZAN INSTITUT EPIDEMIOLOGII I MIKROBIOLOGII.

UNCLASSIFIED

1/3 013 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--3, (4,5, DIBROMO, 2, FURYL), 5, METHYLISOXAZOLE, 4, CARBOXYLIC ACID AND ITS
DERIVATIVES -U-

AUTHOR--(04)--KHISAMUTDINOV, G.KH., STRUKOV, I.T., SOLNSTEVA, A.A., RUDZIT,
E.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM.-FARM. ZH. 1970, 4(2), 21-3

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FURFURAL, BROMINATION, HEREROCYCLIC OXYGEN COMPOUND, ISOMER,
ORGANIC AZO COMPOUND, PENICILLIN, BACTERICIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0597

STEP NO--UR/0450/70/004/002/0021/0023

CIRC ACCESSION NO--AP0113484

UNCLASSIFIED

2/3 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0113484

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. K SUB2 CO SUB3 (14G) IN 120 ML H SUB2 O AND 51.5 G POWD. I (X EQUAL CHO), M. 36-7DEGREES (PREPD. IN 41.5PERCENT YIELD BY BROMINATION OF FURFURAL) ARE ADDED WITH STIRRING TO A COOLED SOLN. OF 14 G NH SUB2 OH.HCL IN 120 ML H SUB2 O, AND THE MIXT. IS STIRRED 1.5 HR AT 35-40DEGREES AND KEPT OVERNIGHT AT ROOM TEMP. TO GIVE 90.6PERCENT ISOMER A OF I (X EQUAL CH IS TO NOH), M. 113-14DEGREES. THIS (20 G) IN 300 ML DRY C SUB6 H SUB6 IS SATD. WITH DRY HCL TO YIELD 96PERCENT ISOMER B OF I (X EQUAL CH IS TO NOH), M. 123DEGREES. A SUSPENSION OF 6.72 G OF THIS IN 40 ML ABS. ETOH IS CHLORINATED AT MINUS 10 TO MINUS 13DEGREES TO COMPLETE OXIME DISSOLN. (SIMILAR TO 1.5 HR), THE SOLN. OF I (X EQUAL CCl IS TO NOH) OBTAINED IS ADDED OVER 20 MIN WITH STIRRING TO A COOLED ETHANOLIC SOLN. OF FRESHLY PREPD. ACCHNACO SUB2 ET (FROM 50 ML ABS. ETOH, 1.53 G METALLIC NA, AND 8.9 G ACCH SUB2 CO SUB2 ET), AND THE MIXT. BROUGHT TO PH 7.5-8, STIRRED 1 HR AT MINUS 5 TO MINUS 10DEGREES, AND KEPT 45 HR AT ROOM TEMP. TO YIELD 51.2PERCENT II (Y EQUAL OET), M. 123.5-24DEGREES (PETROLEUM ETHER). THIS (1 G), 0.14 G KOH, 14 ML ETOH, AND 14 ML WATER IS REFLUXED 4 HR TO GIVE 86.4PERCENT II (Y EQUAL OH), M. 229.5-30DEGREES (AQ. ETOH). SOCl SUB2 (5 ML) AND 2 DROPS HCONME SUB2 ARE ADDED TO THE SUSPENSION OF 1.8 G OF THIS IN 30 ML C SUB6 H SUB6, AND THE MIXT. REFLUXED 4 HR TO GIVE 76.6PERCENT II (Y EQUAL Cl) (III), M. 90-10DEGREES (PETROLEUM ETHER).

UNCLASSIFIED

3/3 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0113484

ABSTRACT/EXTRACT--THIS (1 G) IN 5 ML DRY ME SUB2 CD IS ADDED STEPWISE TO A STIRRED SOLN. OF 0.64 G 6-AMINOPENICILLANIC ACID IN 18 ML 3PERCENT NAHCO SUB3, AND THE MIXT. STIRRED 3.5 HR AT 20DEGREES TO GIVE 0.34 G NA SALT OF 3-(4,5-DIBROMO-2-FURYL)-5-METHYLISOXAZOL-4-YLPENICILLIN, THE ANTIBACTERIAL ACTIVITY OF WHICH IS EXAMD. CONCD. AQ. NH SUB3 (10 ML) IS ADDED DROPWISE TO A STIRRED SOLN. OF 0.7 G III IN 20 ML DRY DIOXANE, AND THE MIXT. KEPT 30 MIN TO YIELD 83.3PERCENT II (Y EQUAL NH SUB2), M. 231-20DEGREES (ETOH). A MIXT. OF 1.85 G III AND 5 ML ABS. MEQH IS HEATED ON A BOILING WATER BATH 2 HR TO GIVE 88.5PERCENT II (Y EQUAL OME), M. 117-18DEGREES (MEQH). THIS (1 G), 0.5 ML ABS. ETOH, AND 0.3 ML N SUB2 NEGATIVE H SUB4 IS HEATED ON A BOILING WATER BATH 2 HR TO YIELD 67PERCENT II (Y EQUALS NHNH SUB2), M. 205.5-206DEGREES (ETOH).

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--MUTUAL EXCHANGE OF HALIDES IN THE REACTION FO ALPHA
HALOPOLYNITROALKANES WITH METAL HALIDES -U-
AUTHOR-(03)-SLOVETSKIY, V.I., KHISAMUTDINOV, G.KH., FAYNZILBERG, A.A.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 728/
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANIC NITRO COMPOUND, ALKANE, HALOGENATED ORGANIC COMPOUND,
EXCHANGE REACTION, LITHIUM COMPOUND, BROMIDE, LITHIUM CHLORIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/0746 STEP NO--UR/0062/70/000/003/0728/0728
CIRC ACCESSION NO--AP0124416
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124416

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KEEPING (O SUB2 N)SUB3 CCL WITH LIBR 1 DAY IN ETOH GAVE 55PERCENT (O SUB2 N)SUB3 CBR, WHICH WITH LICI IN ETOH OR DMF SIMILARLY GAVE (O SUB2 N)SUB3 CCL IN 60PERCENT OR 53PERCENT YIELDS, RESP. (O SUB2 N)SUB3 CI AND LICI OR LIBR IN ETOH OR ME SUB2 SO RAPIDLY GAVE (O SUB2 N)SUB3 CCL OR (O SUB2 N)SUB3 CBR, RESP., IN 30-5PERCENT YIELDS. FBRC(NO SUB2)SUB2 AND LICI IN DMF IN 380 HR AT 20DEGREES GAVE FCLC(NO SUB2)SUB2 AND MECBR(NO SUB2)SUB2 GAVE MECCL(NO SUB2)SUB2 IN 720 HR; THE YIELDS WERE 70 AND 43PERCENT, RESP. CONVERSIONS OF THESE WITH LIBR GAVE MUCH LOWER YIELDS. EHNC THE MECHANISMS OF MANY CLASSICAL REACTIONS OF POLYNITROHALOALKANES MUST BE TREATED FROM A NEW POSITION AS BIMOL NUCLEOPHILIC DISPLACEMENTS AT THE C ATOM. THUS, A SLOW EQUIL. DEVELOPS BETWEEN RC(NO SUB2)SUB2 X AND KI AND KX AND RC(NO SUB2)SUB2 I AND A FAST EQUIL. REACTION BETWEEN THE LATTER AND KI WITH RC(NO SUB2)SUB2 K PLUS I SUB2, TO EXPLAIN THE IODOMETRIC REACTION OF SUCH COMPS. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 681.3.06:51

⁶⁴
KHISAMUTIDNOV, V. R., LEGON'KOV, V. I., AVARMENKO, V. S., TARASOV, V. I.

"The "ASIOR" Automated Development Information Support System"

Avtomatizirovannaya Sistema Informatsionnogo Obespecheniya Razrabatok "ASIOR", [English Version Above], Moscow, 1970, 93 pages, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V632 K, unsigned).

Translation: A description is presented of the "ASIOR" automatic engineering information support system, based on the BESM-6 and BESM-4 (M-220) computers. Trends are studied in the development of automated information systems, and the reason for the selection of the "Kristall" information language for automation of information processes is presented. A description is presented of the technological plan for processing of semantic information, types of input and output information, algorithms and programs for processing of information on the BESM-6 and BESM-4/M-220 computers; instructions are presented for processing of documents and requests, indexing and punching, as well as specimens of documents and requests. Problems of coordination of ASIOR with other information systems, including foreign systems, are studied. Recommendations are presented for standardization of formats and the content of input information in order to allow information exchange on magnetic tape. Experimental operation of ASIOR during 1968 in the modes of selective distribution and retrospective retrieval of information showed the ability of the system to perform a broad range of information tasks. ASIOR has been in productive operation since January of 1969. The prospects for improvement of the system are studied.

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USSR

UDC 532.503.2:678

IVANYUTA, YU. E., KHISLAVSKAYA, N. G.

"Experimental Study of the Effect of Additions of Polyacrylamide on Frictional Resistance During Flow in a Space Between Coaxial Cylinders"

Trudy Leningradskogo Politekhnikeskogo Instituta, Aerotermodinamika
(Works of the Leningrad Polytechnical Institute, Aerothermodynamics),
No 313, 1970, pp 123-127

Translation: This paper contains some experimental results from a study of the effect of additions of a type of polymer on the frictional resistance during flow of water in the clearance between coaxial cylinders. The basic purpose of the experiments was determination of the effect of the molecular weight of the polymer and its concentration on the frictional resistance. Aqueous solutions of the domestically produced polymer -- polyacrylamide -- were taken as the test object. The tests were run for a broad range of variation of molecular weights and concentrations. There are 5 illustrations.

1/1

1/2 029 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--DETERMINATION OF THE CONTENT OF SOME ELEMENTS IN SYNTHETIC FIBERS
WITH RADIOACTIVE ISOTOPES -U-
AUTHOR--(04)-VOLF, L.A., KHISLAVSKIY, A.G., PLOTNIKOV, R.I., ZHODZISHSKIY,
G.A.
COUNTRY OF INFO--USSR
SOURCE--KHIM. VOLOKNA 1970, (2), 32-3
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--SYNTHETIC FIBER, RADIOACTIVE ISOTOPE, CADMIUM ISOTOPE, X RAY
ABSORPTION, SCINTILLATION COUNTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0041

STEP NO--UR/0183/70/000/002/0032/0033

CIRC ACCESSION NO--AP0132336

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132336

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONTENT OF SOME ELEMENTS (HAVING AN AT. NO. GREATER THAN OR EQUAL TO 16) IN SYNTHETIC FIBERS WAS DETD. FROM X RAY ABSORPTION DATA. THE EXPTS. WERE CONDUCTED IN AN X RAY PHOTOMETER, USING PRIME 109 CD AS AN IRRADN. SOURCE AND SCINTILLATION COUNTER AS A DETECTOR. THE METHOD WAS RAPID (5 MIN) AND ACCURATE. FACILITY: LITLP IM. KIROVA, LENINGRAD, USSR.

UNCLASSIFIED

KHISLIN, B.I.

SPKs 59205
6-73

VII-7b. EFFECT OF THE DEFECT STRUCTURE OF THE SUBSTRATES ON THE ELECTRICAL PROPERTIES OF AUTOPITRATIAL GALS

Article by G. F. Kuratov, A. A. Tselin, B. I. Khislina, S. S. Tsingiz, Institute of Radio Engineering and Electronics of the USSR Academy of Sciences, Moscow; Novosibirsk, III Simposium po Protsessam Rozra i Stroyeni Poluprovodnikov, Novosibirsk, 1972, June, 1972, p 93

Substrates with an orientation of {001} were manufactured from single crystal of semiconducting GaAs alloy with Ge. The defect structure of the substrates was studied by the boron x-ray topographic method. The epitaxial monocrystalline films of GaAs were grown by the open chloride method. In one experiment the films were grown on substrates from 2-3 monocrystalline bars with a different defect structure. The mobility of the carriers was measured at 300° K and 77° K.

In the investigated crystals the dislocations form interlayers by which the crystal is divided into regions of the cellular type. The cells mentioned in the various bars vary from 50 to 900 microns. The critical values of the mobility (to 10¹⁰ cm²/sec at 77° K) can be obtained in GaAs films grown on substrates with large cellular structure (hundreds of microns). On the substrates with small cell dimensions (tens of microns), GaAs films with less mobility are systematically obtained under the same conditions.

USSR

UDC: 669.245:620.183

KALININA, Z. M., VERTIY, I. G., KHISMATULLINA, N. S., LONGINOV, M. F.,
SERGEYEVA, L. V., FILATOV, B. A., ARTEMOVA, S. P., Chelyabinsk

"Influence of Magnesium on the Structure of Heat-Resistant Nickel-Based Alloys"

Izvestiya Akademii Nauk SSSR, Metally, No 4, Jul-Aug 73, pp 193-196.

Abstract: The influence of magnesium on the structure of nickel alloys was studied under the assumption that magnesium is concentrated primarily along the grain boundaries and in areas of other defects of the crystalline lattice. Assuming that a very slight concentration of magnesium could produce an excess of magnesium at these defect locations and thus hinder the separation of carbides and other excessive phases in these locations, facilitating their more even distribution through the entire volume of the alloy, the authors turned primary attention to the study of the influence of magnesium on the form, dispersion and nature of distribution of excess phases in the solid solution. It was found that the optimal addition of magnesium to heat resistant nickel-based alloys decreases dendritic liquation, makes the excess phases finer and facilitates their more even distribution. This

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USSR

Kalinina, Z. M., Vertiy, I. G., Khismatullina, N. S., Longinov, M. F., Sergeyeva, L. V., Filatov, B. A., Artemova, S. P., Izvestiya Akademii Nauk SSSR, Metally, No 4, Jul-Aug 73, pp 193-196.

increases the technological plasticity and long-term strength of the metal. Excess alloying or enrichment of alloys with magnesium from the slag and lining in the furnace cause an increase in local chemical heterogeneity, in turn causing the appearance of new excess phases, decreasing the melting point of the metal in the area of these phases and reducing technological plasticity.

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2/2

USSR

UDC 620.194:621.785.7

KHITARISHVILI, M. G., DIKIY, I. I., ZYUBRIK, A. I., VASILENKO, I. I.

Physicomechanical Institute, Academy of Sciences, Ukrainian SSR, L'vov

"An Investigation of Corrosive Cracking of High-Strength Steels in Some Media"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 7, No 4, 1971, pp 19-23

Abstract: The present article is a continuation of research dealing with the cracking of high-strength hardened USA carbon steel in acid and neutral media. The development of a crack in a sample undergoing testing for corrosive cracking brings about a gradual decrease of cross section. Therefore, if equally loaded samples are preliminarily held in the medium for different lengths of time, and are then tested for short-time strength in air, this short-time strength must continually decrease with increase of the time the sample is held in the medium. The indicated nature of the change between the short-term strength of the samples and the kinetics of crack development has a specific relationship; various sectors of the curves correspond to various stages of corrosive crack development. These stages of crack development are explained from the point of view of the electrochemical theory of corrosive cracking. 5 figures. 2 tables. 8 references.

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1/2 - 023

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--EFFECT OF A THREADED SECTION AND THE METHOD OF PRODUCING IT ON THE
RESISTANCE OF ,CARBON, STEEL SAMPLES TO CORROSION CRACKING -U-
AUTHOR-(03)-DUTSYAK, Z.G., KHITARISHVILI, M.G., BABEY, YU.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. MEKHAN. MAT., 1970, 6, (1), 112-113

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CORROSION CRACKING, CARBON STEEL, AMMONIUM NITRATE, STRESS
ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0218

STEP NO--UR/0369/70/006/001/0112/0113

CIRC ACCESSION NO--AP0129474

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129474

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESISTANCE OF C STEEL (ST. 45) SAMPLES TO CORROSION CRACKING IN A BOILING NH SUB4 NO SUB3 SOLUTION WAS STUDIED AS A FUNCTION OF THE TYPE OF STRESS RAISER INCORPORATED IN THE SAMPLE (SCREW THREADS, GROOVES, ETC.) AND THE MANNER OF PRODUCING SUCH STRESS CONCENTRATIONS. SAMPLES WITH CUT SCREW THREADS HAVE A LOWER RESISTANCE TO CORROSION CRACKING THAN THOSE CONTG. A GROUND THREAD. THE DIFFERENCE BETWEEN GRINDING AND MACHINING WITH A STEEL TOOL WAS GREATEST IN THE CASE OF A SINGLE GROOVE AND LEAST IN THAT OF A COMPLETE THREAD, THERE BEING A CERTAIN "AVERAGING" EFFECT IN THE LATTER CASE.

UNCLASSIFIED

Acc. Nr. **AP0049915** Abstracting Service:
CHEMICAL ABST. 5/70

Ref. Code:
UR 0007

✓ 104582b Phase transition in metakaolin and the true heat capacity of new phases. Kuskov, O. L.; Khitarenko, N. I. (V. I. Vernadskii Inst. Geochem. Anal. Chem., Moscow, USSR). Geokhimiya 1970, (2), 185-91 (Russ). The sp. heat of metakaolin was measured at 100-800°. A polymorphic transformation was detected in metakaolin at 400-500°. The temp. of polymorphic transformation of metakaolinite was $435 \pm 10^\circ$. The dependence of sp. heat of metakaolin on the abs. temp. is expressed by the following equations: at 373-674°K $C_p = 53.67 + 11.09 \times 10^{-3}T - 14.55 \times 10^{-5}T^2$ and at 773-1073°K $C_p = 40.65 + 21.39 \times 10^{-3}T + 35.89 \times 10^{-5}T^2$ cal/degree-mole. The overall sp. heat of products of metakaolin decompn. was detd. BLJR -

REEL/FRA
19801851

7 at

1/2 006 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--PHASE TRANSFORMATIONS AND KNOWLEDGE OF THE DEPTHS OF THE EARTH -U-

AUTHOR--KHITAROV, N.I. *K*

COUNTRY OF INFO--AUSTRALIA, WORLD WIDE, USSR

SOURCE--AKAD. NAUK SSSR VESTNIK, NR 7, P 81-84, 1969

DATE PUBLISHED-----69

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--SYMPOSIUM, UPPER MANTLE, EARTH CORE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1662

STEP NO--UR/0030/69/000/007/0031/0034

CIRC ACCESSION NO--AP0104884

UNCLASSIFIED

2/2 006

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104884

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS IS A REPORT ON A SYMPOSIUM ORGANIZED BY THE INTERNATIONAL COMMITTEE ON THE UPPER MANTLE AND THE AUSTRALIAN ACADEMY OF SCIENCES, HELD IN CANBERRA ON JANUARY 6-10, 1969. THE MAIN INTEREST OF THE SYMPOSIUM WAS REFLECTED IN DATA ON EXPERIMENTAL STUDIES OF PHASE TRANSFORMATIONS IN BOTH DRY SYSTEMS AND THOSE CONTAINING WATER. THE SUBJECT MATTER OF THE VARIOUS PAPERS IS INDICATED.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--EXPERIMENTAL DATA ON THE COMPOSITION OF SYNTHETIC ANALCIMES -U-
AUTHOR--(03)-KHUNDADZE, A.G., SENDEROV, E.E., KHITAROV, N.I.
COUNTRY OF INFO--USSR
SOURCE--GEOKHIMIYA 1970, (5), 588-600
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--GEOLOGY, ROCK, CRYSTALLIZATION, GEOCHEMISTRY, SODIUM OXIDE,
ALUMINUM OXIDE, SILICON DIOXIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3007/0144 STEP NO--UR/0007/70/000/005/0588/0600
CIRC ACCESSION NO--AP0135641
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0135641

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANALCINE WAS SYNTHESIZED FROM GELS; HAVING MNA SUB2 O AL SUB2 O SUB3 NSIO SUB2 PLUS AQ. COMPN. (WHERE M EQUALS 4-6 AND N EQUALS 10-20) AND SIMILAR TO 20PERCENT OF NA SUB2 O PLUS AL SUB2 O SUB3 PLUS SIO SUB2 AT 120-450DEGREES UNDER WATER PRESSURE OF SIMILAR TO 250 ATM. THE MOL. SIO SUB2-AL SUB2 O SUB3 RATIO IN ITS COMPN. WAS 2.8-8.2. THE STUDY OF VARIOUS FACTORS, PROMOTING THE FORMATION OF STABLE PHASES (ALKY. OF SOLNS. ABOVE ALL), LED TO THE CONCLUSION THAT AT SMALLER THAN OR EQUAL TO 400DEGREES, THE THERMODYNAMICALLY STABLE ANALCIME VARIETIES HAVE AN IDEAL FORMULA FOR THE MINERAL (NAALSI SUB2 O SUB6 H SUB2 O, WHERE SIO SUB2-AL SUB2 O SUB3 EQUALS 4); AND ITS SOLID SOLNS., WITH VARIABLE CONTENT OF COMPONENTS, ARE FORMED BY METASTABLE GROWTH. THE COMPN. OF ANALCIME THUS CANNOT BE USED IN GEOTHERMOMETRY, APPLIED TO THE LOW TEMP. METAMORPHISM AND DIAGENESIS, BECAUSE THE CHANGES IN ITS COMPN. ARE CAUSED BY VARIOUS FACTORS OF METASTABLE GROWTH. BUT THE DETECTION OF ANALCIMES, POOR IN SIO SUB2, IN HYPABYSSAL INTRUSIVE ROCKS CAN BE USED FOR OBTAINING INFORMATION ON THE TEMP. CONDITIONS OF ROCK FORMATION. FACILITY:
V. I. VERNADSKII INST. GEOCHEM. ANAL. CHEM., MOSCOW, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--KINETICS OF THE ADSORPTION OF NITROGEN OXIDES ON FINE PORE SILICA
GEL IN A FLUIDIZED BED -U-
AUTHOR--(03)--KAZAKOVA, YE.A., KHITERER, R.Z., SAVOSTYANDVA, N.S.
COUNTRY OF INFO--USSR
SOURCE--KHIM. PROM., MOSCOW, 1970, 46,2, 98-103
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--NITROGEN OXIDE, SILICA GEL, FLUIDIZED BED, CHEMICAL
KINETICS/(U)ASM SILICA GEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0885 STEP NO--UR/0064/70/046/002/0098/0103
CIRC ACCESSION NO--AP0118054
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118054

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTL. DATA ON THE ADSORPTION OF NO SUB2 FROM GASES BY ASM SILICA GEL IN A FLUIDIZED BED MAY BE SATISFACTORILY DESCRIBED BY THE EQUATION. $B \text{ DIVIDED BY } B \text{ SUB8 EQUALS } 3 \text{ TIMES } 10 \text{ NEGATIVE PRIME3 } W \text{ CO PRIMETAU DIVIDED BY } A \text{ SUBS H}$, WHERE B IS THE AMT. OF NO SUB2 PASSED THROUGH THE BED, B SUB8 IS THE AMT. ADSORBED BY THE SILICA GEL UPON SATN., W IS THE GAS VELOCITY IN M,SEC, C SUB0 IS THE INITIAL NO SUB2 CONC. IN THE GAS IN VOLPERCENT. TAU IS THE TIME IN MIN. A SUBS IS THE EQUIL. DEGREE OF ADSORPTION OF NO SUB2 ON THE SILICA GEL UNDER THE GIVEN CONDITIONS IN G,100 G, AND H IS THE HEIGHT OF THE BED IN MM. THE EXPTL. DATA WERE COLLECTED WITH GASES WITH A NEGLIGIBLE N SUB2 O SUB4 CONTENT, AT 0-40DEGREES.

UNCLASSIFIED

Steels



USSR

UDC 621.643.411.4.62-192.

MOISEYEV, A. A., Candidate of Technical Sciences, SUKHAREVA, V. D., Engineer, ZEMZIN, V. N., Doctor of Technical Sciences, KHITRIK, A. I., Candidate of Technical Sciences, MOSHKEVICH, Ye. I., Candidate of Technical Sciences, KOROBOCHKIN, I. Yu., Candidate of Technical Sciences, KIRVALIDZE, N. M., Candidate of Technical Sciences, PISHCHIKOV, G. P., Candidate of Technical Sciences, DEVYATKO, E. I., Engineer, All-Union "Order of the Red Banner of Labor" Scientific Research Institute of Heat Engineering imeni F. E. Dzerzhinskiy, Central Scientific Research Design and Planning Boiler and Turbine Institute imeni I. I. Polzunov, Road Construction Division, Southern Pipe Plant, All-Union Scientific Research Diesel Locomotive Institute

"Improving the Operational Reliability of Welded Joints and the Technological Properties of High-Strength EP184 Austenitic Steel"

Moscow, Teploenergetika, No 8, Aug 72, pp 46-49

Abstract: The article is a report on the results of joint research by various scientific research institutes and industrial organizations to determine what effect methods of melting EP184 steel might have on the work-

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USSR

MOISEYEV, A. A. et al., Teploenergetika, No 8, Aug 72, pp 46-49

ing reliability of welded joints as well as on the other properties of the metal. It was found that crack formation in joints can be eliminated by reducing the oxygen content, as well as the concentrations of hydrogen, nitrogen, sulfur and phosphorus below certain levels. This can be done by melting from a fresh charge with subsequent vacuum-arc remelting. Electroslag remelting can be used as well, but is less effective.

UDC 669.71.053.24(02)

USSR

GASIK, M. I., YEMLIN, B. I., KLIMKOVICH, N. S., and ~~KHITRIK, S. I.~~

"Electrosmelting of Aluminosilicates"

Elektroplavka alyumosilikatov (cf. English above), Moscow, "Metallurgiya" (Metallurgy), 1971, 304 pp, ill, 1 r. 5 k. (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G114K from summary)

Translation of Abstract: The book summarizes the authors' original theoretical and experimental laboratory and industrial experiments in aluminosilicate processing according to a scheme devised for the purpose of obtaining synthetic corundum, commercial Al_2O_3 , Al alloys, Fe-Si, refractories, and other products. A critical comparative analysis is presented of the published results of the investigations of other authors in the field of aluminosilicate utilization. Sixty-two illustrations. Ninety-two tables. Bibliography with 329 titles.

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UDC 669.712.4

USSR

GASIK, M. I., YEMLIN, B. I., KLIMKOVICH, N. S., and KHITRIK, S. I.
Electric Smelting of Aluminosilicates (Elektroplavka ~~silikatov~~),
Moscow, "Metallurgiya" Press, 1971, 304 pages, 62 illustrations, 92 tables,
329 bibliographic references

Translation of Annotation: The book is an attempt to correlate the results of new theoretical and experimental (both laboratory and production-scale) studies performed by the authors on methods for processing aluminosilicates to electrolytic corundum, technical-grade alumina, aluminum alloys, ferro-silicon, refractories, and other materials. A critical comparative analysis of related works (and their results) by other researchers in aluminosilicate applications is presented. The book is intended for the engineering, technical and scientific personnel of nonferrous and ferrous metallurgy, and the chemical and abrasives industries engaged in electrothermics. It may also be useful to students of higher and secondary educational institutions specializing in the field of electrothermics of inorganic materials.

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GASIK, M. I., et al., Electric Smelting of Aluminosilicates (Elektroplavka alumosilikatov), Moscow, "Metallurgiya" Press, 1971, 304 pages, 62 illustrations, 92 tables, 329 bibliographic references

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USSR

GASIK, M. I., et al., Electric Smelting of Aluminosilicates (Elektroplavka alyumosilikatov), Moscow, "Metallurgiya" Press, 1971, 304 pages, 62 illustrations, 92 tables, 329 bibliographic references

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USSR

UDC 669.168.001

MCHEDLISHVILI, V. A., IGNAT'YEV, V. S., ZAGYU, T. N., and KHITRIK, S. I.

"Oxide Inclusions in Ferrotitanium and Ferroniobium"

Moscow, Stal', No 7, Jul 71, pp 614-615

Abstract: The authors studied the quantity and composition of oxide inclusions in standard ferroalloys, viz. 30-percent ferrotitanium Ti1 and 60-percent ferroniobium Nb1 and Nb0, after isolating them by chlorination by converting the metallic components of the alloys into volatile chlorides during heating under the action of gaseous high-purity chlorine with subsequent vacuum sublimation of the chlorides. It was found that the oxide inclusions in ferrotitanium and ferroniobium are mainly of endogenous origin. Those in ferrotitanium are represented by corundum (α - Al_2O_3), β -alumina with an admixture of TiO_2 and Cr_2O_3 , mullite, helenite, and silicates of the sphene and fayalite type. Ferroniobium contains inclusions of corundum, complex aluminosilicates and oxides of the columbite and mosite type. The oxide inclusion content of ferrotita-

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USSR

MCHEDLISHVILI, V. A., et al., Stal', No 7, Jul 71, pp 614-615

nium is 0.2-0.3 percent, low-silicon ferroniobium 0.04-0.14 percent and high-silicon ferroniobium 0.1-0.3 percent. The inclusions are distributed much more uniformly in ferroniobium than in ferrotitanium. The principal component of inclusions in both ferroalloys is alumina Al_2O_3 . There are also significant quantities of SiO_2 , FeO and TiO_2 . Ferroniobium also contains niobium and tantalum oxides; and ferrotitanium -- insignificant quantities of manganese, calcium and chromium oxides. The calculated oxygen content of the inclusions for both alloys practically coincides with that found by the vacuum melting method (0.03-0.14 percent for ferrotitanium, 0.03-0.06 percent for low-silicon ferroniobium and 0.08-0.12 percent for high-silicon ferroniobium).

- END -

CBO: 1842-W

2/2

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USSR

UDC 669.71.053.24(088.8)

KHITRIK, S. I., GASIK, M. I., VUKOLOV, YE. A., KLIMKOVICH, N. A.,
PORADA, A. N., LAGUNOV, YU. V., POLONSKIY, S. M., IORDANOVA,
Z. A., MALYSHEV, V. I., YEMLIN, B. I., KASHKUL', V. V., MASHKOV,
V. P. TSEYMAKH, N. L., YEM, A. P., CHERNYSH, F. I., and KOLNOGU-
ZENKO, V. A., Dnepropetrovsk Metallurgical Institute

"Method of Smelting Abrasive Electrolytically Produced Corundum"

USSR Author's Certificate No 263635, filed 15 Oct 65, published
10 Jun 70 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11
G101 P)

Translation: A method is proposed for smelting abrasive elec-
trolytically produced corundum in a thermal furnace which involves
deep fusion of alumina-containing charge with reducing agents.
To increase the abrasive properties of corundum and to obtain
in it a Ti oxide content of $\leq 1\%$, smelting is carried out on
kaolin presintered with Fe-ore additive or scale in the amount
of 20-30 wt % of the charge.

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- 30 -

USSR

UDC 669.18:669.046.5

MELEZHIK, V. D., PETRICHENKO, A. G., KHITRIK, S. I., LYSENKO, I. V., and
POLYANSKIY, V. I.

"Investigation of Ferrosilicon From Kaolins for Deoxidation of Pipe Steel"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 5, Sep-
Oct 70, pp 15-16

Abstract: Data are given on the use of ferrosilicon from kaolin for the deoxidation of low-carbon pipe steels. The procedure for the production of ferrosilicon from secondary kaolins from the Cherkassk region of the Ukrainian SSR, and experimental meltings in 300-ton-capacity Martin furnaces using ferrosilicon for preliminary deoxidation reduce the expenditure of carbon ferromanganese and 45% ferrosilicon, thus reducing the cost of melting steel. In spite of the high phosphorus content in kaolin ferrosilicon (0.3%), its use does not increase the phosphorus content in the metal. Steel deoxidation by kaolin ferrosilicon does not involve additional contamination by nonmetallic impurities.

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1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--THERMODYNAMICS OF THE REDUCTION OF CHROMIUM OXIDE BY SILICON -U-
AUTHOR--(03)-GASIK, M.I., EMLIN, B.I., KHITRIK, S.I.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(3), 59-62
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, CHEMISTRY
TOPIC TAGS--THERMODYNAMICS, SILICON, CHROMIUM OXIDE, SLAG
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1999/1648 STEP NO--UR/0148/70/013/003/0059/0062
CIRC ACCESSION NO--AT0123486

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0123486

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. METALLIC PHASE CONTG. CR 62.7PERCENT, SI 6.13PERCENT, AND FE 21.2PERCENT WAS EQUILIBRATED AT 1600-1880DEGREES WITH SLAGS CONTG. 24.5-66.2PERCENT CRO AND 33.8-75.5PERCENT SIO SUB2. FOR 3 SLAG COMPNS. THE EQUIL. CONST. AND THERMODYNAMIC PARAMETERS OF THE REACTION 2 CRO PLUS SI YIELDS 2 CR PLUS SIO SUB2 WERE EVALUATED. SDEGREES FOR CRO AT 1600-1880DEGREES WAS 49.19 KCAL-MOLE-DEGREE, AND THE EQUIL. TEMP. OF THE 3 CRO YIELDS CR SUB2 O SUB3 PLUS CR REACTION IS SIMILAR TO 1490DEGREES. THE DECOMPN. REACTION 3 CR SUB3 O SUB4 YIELDS 4 CR SUB2 O SUB3 PLUS CR SUGGESTED BY KOCH WAS CRITICIZED AND SHOWN AS NOT REAL FROM THE VIEWPOINT OF THE PRESENT THERMODYNAMIC DATA. THE PLOT OF LOG P SUBO (P SUBO EQUALS PRESSURE OF O) VS. TEMP. CALCD. FOR THE CR-O SYSTEM; THE EXISTENCE REGIONS OF CRO AND CR SUB2 O SUB3 ARE SHOWN. BELOW 1760DEGREES CRO IS UNSTABLE AND CR SUB2 O SUB3 IS REDUCED DIRECTLY TO CR WHEREAS ABOVE THIS TEMP. STEPWISE REDN. THROUGH CRO OCCURS. FACILITY: DNEPROPETROVSK. MET. INST., DNEPROPETROVSK, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--MAKING COMMERCIAL SILICOMANGANESE BRICKS USING BRIQUETTES OR SINTER -U
AUTHOR--(03)-SUKHORUKOV, A.I., SOSEDKO, P.M., KHITRIK, S.I.
COUNTRY OF INFO--USSR
SOURCE--STAL' 1970, 30(2), 135-6
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--INDUSTRIAL FURNACE, REFRACTORY MATERIAL, CARBON, MANGANESE,
STOICHIOMETRIC MIXTURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1994/1946 STEP NO--UR/0133/70/030/002/0135/0136
CIRC ACCESSION NO--AP0115754
UNCLASSIFIED

272 014

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0115754

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATS MADE BY USING RAW BRIQUETS COMPOSED OF MN CONC., OTHER INGREDIENTS OF THE FURNACE CHARGE, AND A STOICHIOMETRIC MAT. OF C WERE COMPARED WITH THOSE IN WHICH MN CONC. SINTER WAS USED AS A CONSTITUENT OF A CONVENTIONAL CHARGE. RECOVERY OF MN WAS 10PERCENT HIGHER AND FURNACE OPERATIONS BETTER IN THE 1ST CASE.

UNCLASSIFIED

USSR

UDC: 62-50

KHITRIK, V. E., KOVNER, V. Ya.

"Selecting the Law of Motion of Mechanical Systems With One Degree of Freedom From Conditions of Optimization With Respect to Combined Dynamic Criteria"

Teoriya mekhanizmov i mashin. Resp. mezhved. temat. nauch.-tekhn. sb.
(Theory of Mechanisms and Machines. Republic Interdepartmental Thematic Scientific and Technical Collection), 1972, vyp. 13, pp 61-70 (from RZh-Mekhanika, No 9, Sep 72, Abstract No 9A128)

Translation: The dynamic operating mode of mechanisms with a single degree of freedom is optimized to improve the productivity of automatic machines, and a combined dimensionless criterion [is given] which accounts simultaneously for the rms value of the invariant of the dynamic power or the mean integral acceleration with a weight given in the form of a continuous or piecewise-constant weight function. The problems are solved in analytical form. Bibliography of 7 titles. Authors' abstract.

1/1

USSR

UDC 681.326

KHITRIN, A. G., POTAPOV, A. I.

"Some Problems of Design of Automatic Diode Matrix Test Circuits"

Elektron. Tekhnika. Nauchno-tekhn. Sb. Upr. Kachestvom i Standartiz [Electronic Equipment. Scientific and Technical Collection. Quality Control and Standardization], No. 2, 1970, pp 68-75 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 4, 1971, Abstract No. 4B443 by VV).

Translation: A device is described which allows testing of the operation of diode matrices to be performed automatically. A block diagram is described and several versions of realization of individual units are suggested. 6 figs, 4 biblio refs.

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USSR

UDC 616-008.922.1.04-02:615.916:546.267-07:616.45+
616.839/-008

KHITROV, N. K., DEMUROV, YE. A., and ABINDER, A. A., Department of Pathological Physiology and Department of Hospital Therapy, First Moscow Medical Institute imeni I. M. Sechernov

"Role of the Sympathoadrenal System in Altering Cholinergic Activity During Acute Tissue Hypoxia Induced by Cyanides"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 2, pp 86-87

Abstract: In one series of experiments, rabbits were given potassium cyanide intravenously and 40 to 60 min later, a larger dose of the compound. In another series, the animals were given chlorpromazine intravenously 15 to 20 min before the first dose of potassium cyanide in order to block the adreno-reactive structures. Administration of 1.5 mg/kg or KCN to the animals caused motor excitation, elevation of arterial pressure, and development of bradycardia. Blood cholinesterase activity decreased while blood acetylcholine increased. Injection of 3.2 mg/kg of KCN after the animals' respiration, EKG, and arterial pressure returned to normal lowered arterial pressure and slowed the pulse. Blood cholinesterase activity remained low, but the acetylcholine

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USSR

KHITROV, N. K., et al., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 2, pp 86-87

concentration increased. In the second series of experiments, administration of 5 mg/kg of chlorpromazine increased blood acetylcholine slightly but had no effect on cholinesterase activity. Intravenous injection of 1.5 mg of KCN 15 minutes later altered blood cholinesterase and acetylcholine insignificantly. The larger dose (3.2 mg/kg) had the same effects of these indexes as in intact animals.

2/2

1/2 024 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--CHANGES IN THE SYMPATHETIC AND PARASYMPATHETIC REACTIONS IN
NEUROLEPTOANALGESIA WITH MYORELAXANTS AND ARTIFICIAL VENTILATION OF THE
AUTHOR--(03)--PADALKO, V.V., KHITROV, N.K., DEMUROV, YE.A.

COUNTRY OF INFO--USSR

SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIYA, 1970, NR 2, PP
72-76.

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MUSCLE RELAXANT, ARTIFICIAL RESPIRATION, HYPOTENSION, DRUG
ANALGESIC EFFECT, CURARE DRUG EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1990/0639

STEP NO--UR/0481/70/000/002/0072/0076

CIRC ACCESSION NO--AP0108850

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0108850

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNDER NEUROLEPTOANALGESIA WITH MYORELAXANTS AND ARTIFICIAL VENTILATION OF THE LUNGS A COMPLEX REARRANGEMENT OF FUNCTIONING OF THE ADREN AND CHOLINERGIC APPARATUS OF CARDIOVASCULAR CONTROL TAKES PLACE. NLA PRODUCES HYPOTENSION AND TACHYCARDIA, DECREASES SENSITIVITY OF ALPHA AND BETA ADRENORECEPTORS AND INCREASES ACTIVITY OF M CHILINOREACTIVE STRUCTURES. MYORELAXANTS OF BOTH TYPES WITH NLA DO NOT AFFECT THE BLOOD PRESSURE, BUT DECREASE TACHYCARDIA. LYSTENON UNDER ABOVE CONDITIONS INCREASES SENSITIVITY OF BETA ADRENORECEPTORS, WHILE TUBOCURARIN ACTS IN A SIMILAR MANNER OF ALPHA ADRENORECEPTORS. THE AUTHORS SUGGEST THAT THE ABOVE EFFECTS OF TALAMONAL AND RELAXANTS ARE DUE TO CHANGES IN THE MEDIATOR METABOLISM.

FACILITY: KAFEDRA PATOLOGICHESKOY FIZIOLOGII I MOSKOVSKOGO MEDITSINSK. INSTITUTA IM. I. M. SECHENOVA.

UNCLASSIFIED

USSR

UDC 550.831

YEFREMOV, V. V., GORIN, V. P., TIKHOMIROV, Ye. M., KHITROV, S. I.

"A Gravimeter"

USSR Author's Certificate No 347721, Filed 26/01/71, Otkrytiya, Izobreteniya Promyshlennye Obraztsy Tovarnye Znaki, No 24, Moscow, 1972, p 152.

Translation: A gravimeter, containing a pendulum on an elastic suspension, fastened to the pendulum of a vertical plate of a dielectric, two nonmoving vertical metal plates, rigidly connected to the body, a control panel, including a supply oscillator, a capacitive bridge, one of the diagonals of which contains an indicator galvanometer, and a voltage divider with a reading device, differing in that in order to simplify the process of operation of the gravimeter, the nonmoving plates are connected into one arm of the capacitive bridge, while the supply generator is connected to another arm of this bridge by means of a voltage divider.

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USSR

UDC 539.3

KHITROV, V. N., Institute of Mechanics, Academy of Sciences, Ukrainian SSR

"Determination of the Deformation and Forces in a Shell Supported in Two Directions by Ribs"

Kiev, Prikladnaya Mekhanika, No 1, 1971, pp 49-54

Abstract: An analytic solution of the problem of determination of the stress-deformed state of a shell, reinforced by ribs in two directions is found by the method of successive approximation, account being taken of the discrete placement of the ribs. Numerical analysis of the convergence of the constructed process is carried out on the basis of the example of a hinge-supported cylindrical shell under the action of a local load. Calculations showed that as the rigidity of the ribs is increased, the rate of convergence slows down somewhat, but with the proposed method of constructing the successive approximations, the convergence of the process is not disrupted even with very great rib rigidity. 4 figures, 4 tables, 10 bibliographic entries.

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USSR

UDC 531.781.2.033

KHARITONOV, G. M., KHITROVA, O. M.

"Error in the Measurement of Static Deformations, Caused by Unsteadiness of the Thermal Regime, by Means of Conductor-Type Tensoresistors"

Kiev, Teplovyye Napryazh. v Elementakh Konstruktsiy -- Sbornik (Thermal Stresses in Structural Elements -- Collection of Works), Nauk, Dumka, No 11, 1971, pp 204-208 (from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No 12, Dec 71, Abstract No 12.32.557)

Translation: The article deals with error in the measurement of static deformations under conditions of the rapid heating (cooling) of a structure, which originates as a consequence of a temperature difference between the tensoresistor element and the surface of the structure under the tensoresistor, as well as due to distortions of the temperature field of the structure by the tensoresistor. 3 references.

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1/2 024 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--NEW EXPERIMENTAL DATA ON THE PROCESSES OF ORDERING IN COMPLEX
STRUCTURES -U-
AUTHOR--PINSKER, Z.G., IMAMOV, R.M., KHITROVA, V.I.
COUNTRY OF INFO--USSR
SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(1), 124-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--ORDERED ALLOY, TRANSITION METAL, TRANSITION METAL OXIDE,
THERMAL DIFFUSION, SEMICONDUCTOR ALLOY, ELECTRON DIFFRACTION ANALYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1989/1342 STEP NO--UR/0185/70/015/001/0124/0126
CIRC ACCESSION NO--AP0107815
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107815

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ORDERING PROCESS IN BINARY AND
TERNARY TRANSITION METAL SYSTEMS WERE STUDIED BY USE OF ELECTRON
DIFFRACTION. TRANSITION METAL OXIDES UNDERGO CONC. ORDERING, WHICH
OCCURS SEP. FOR METAL AND O SUBLATTICES. TEMP. ORDERING OCCURS IN
BINARY AND TERNARY SEMICONDUCTOR SYSTEMS (LIKE AG OR CU CHALCOGENIDES OR
CUASSE SUB2).

UDC 66.012.1

USSR

LEBEDEV, L. I., MANDRYGIN, Yu. A., KHITROVSKIY, Ye. I., and KALYANOVA, S. A.,

"A Device for Statistically Monitoring the Median Interval and Percent of Rejection"

USSR Author's Certificate, Class G 06 s 15/36, No 331390, filed 22 Apr 68, published 13 Apr 72 (from RZh-Avtomatika Telemekhanika i Vychislitel'naya Tekhnika, No 3, Mar 73, Abstract No 3 A403 P)

Translation: A device is proposed for statistical monitoring of the median interval and percentage of rejects. The device consists of a control unit, an input unit, an interval counter, a unit for determining the volume of the selection, a histogram presentation unit, a unit for determining the median interval, and indicators. To improve the quality of monitoring of a technological process, the device contains a reject counter-- the input to which is connected to the outputs of the reject intervals of the input device -- and a unit for comparing and indicating actual values of rejection percentage, the median interval with given boundaries, and the result of the preceding selection. The inputs of this unit are connected to the outputs of the damage counter and unit for determining the median interval. To improve the visibility and

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LEBEDEV, L. I., et al., USSR Author's Certificate, Class G 06 s 15/36,
No 331390, filed 22 Apr 68

reliability of the histogram presentation, the input of each of the sets of indicator elements in the columns of the histogram display is connected with the corresponding output of the receiving register decoder and through phase coordinating elements with the output of the preceding unit. Two illustrations.

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US3R

UDC: 519.2

KHITSAMUTDINOV, A. I.

"Estimates of a 'Unit' Class With Minimum Variance"

V sb. Veroyatnostn. metody resheniya zadach mat. fiz. (Probabilistic Methods of Solving Problems in Mathematical Physics--collection of works), Novosibirsk, 1971, pp 184-210 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V179)

Translation: The author studies the Monte-Carlo method for calculating a given functional $I = (f, \varphi_1)$ of a solution of the integral equation

$$\varphi(x) = \int_K K(y, x) \varphi(y) dy + f_1(x). \quad (1)$$

It is known that if the Neumann series for ϕ converges, then

$$I = \sum_{i=1}^{\infty} (K^{i-1} f_1, \varphi_1), \quad (2)$$

where the K^i are iterations of the operator K . The Monte-Carlo procedure for calculating the sum of series (2) consists in assigning a homogeneous Markov chain and a random quantity ζ --

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USSR

KHITSAMUTDINOV, A. I., Veroyatnostn. metody resheniya zadach
mat. fiz., Novosibirsk, 1971, pp 184-210

an estimate of the functional I defined on the probabilistic space of trajectories of this chain. Ordinarily selection of the Monte-Carlo procedure assumes an unbiased estimate $E\epsilon=1$, and in the literature many estimates are known which satisfy this condition for the case of a fixed Markov chain. The intercomparison of variances for different estimates is the principal topic for research in this field. This paper investigates the so-called "unit" class of unbiased estimates previously introduced by the author. Estimates are found for a "unit" class with minimum variance. Since knowledge of the solution of equation (1) is required for constructing these estimates, a method is indicated for constructing estimates which are ϵ -close to the optimum. These estimates can be used in practical calculations. V. Granovskiy.

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Computers: Equipment

USSR

UDC: 658.562.012.7

KHITROVSKIY, Ye. I., TURKINA, T. I., LEBEDEV, L. I., MURAV'YEV, V. A.

"A Device for Gathering and Processing Statistical Data"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obratzsyy, Tovarnyye Znaki,
No 31, 1970, Soviet Patent No 283689, Class 42, filed 20 May 69, p 139

Abstract: This Author's Certificate introduces a device for gathering and processing statistical data on the course of a technological process. The device contains a buffer memory and units for normalizing, comparison, storage, control and synchronization, program setting, program processing, signaling, display, and registration. As a distinguishing feature of the patent, the effectiveness of analysis is improved and the technological process is simplified by connecting the output of the comparison unit to the input of the program setting unit, and connecting one input of the signaling unit to the output of the program processing unit, while the other input is connected to the output of the program setting unit.

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USSR

UDC 537.311.33:514.28

KONOZENKO, I.D., VINETSKIY, V.L., VARENTSOV, M.D., YERITSYAN, G.N., SEMENYUK, A.K., STARCHIK, M.I., KHIVRICH, V.I.

"Effect Of Certain Factors On The Processes Of Formation Of Radiation Defects In Silicon And Germanium During Gamma Irradiation"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Non-Metallic Crystals--Collection Of Works), Minsk, "Nauka i tekhn.," 1970, pp 22-44 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B26)

Translation: The kinetics are studied of the buildup of radiation defects in Si and n- and p-type Ge during Gamma irradiation. The effect of the charge state and temperature on the formation of recombination centers is considered as well as the effect of dosage, the intensity of Gamma irradiation, concentration, preliminary irradiation and other factors on the formation of radiation defects. 32 ref. V.B.

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USSR

BELOV, K. P., MILL, B. V., SOKOLOV, V. I., and KHIYEN, T. D., Moscow State University imeni M. V. Lomonosov

"Magnetic Properties of Cobalt-Containing Ferrite-Garnets"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 6, 1971, pp 1649-1653

Abstract: Measurements of the magnetic and magnetostrictive properties of polycrystalline substituted ferrite-garnets of the system $R_3Co_xFe_{5-2x}Ge_{12}$ in which ions with $L \neq 0$ (L is inductance) can be present in each of the three magnetic sublattices of garnet are reported. The charge compositions in the garnet synthesis included Co_3O_4 , Fe_2O_3 , and GeO_2 , along with oxides of gadolinium, terbium, and dysprosium with purity not less than 99.99%. Excess GeO_2 (2-3%) was added to the charge to compensate for vaporization losses. In the temperature range 4.2 - 100°K and in magnetic fields up to 60 kilo-oersteds, data were obtained on the effect of the Co^{2+} concentration in rare-earth ferrite-garnets on the magnetic field intensity and the coercive force. It was shown that adding Co^{2+} to rare-earth ferrite-garnets leads to a sharp increase in the coercive force variant. An anomalous dependence of the magnetostriction of terbium ferrite-garnets on the field at high Co^{2+} concentrations was observed.

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USSR

UDC: 51

KIVISTIK, L., KHIYESALU, U.

"Gomori's Third Algorithm in the Case of Bilateral Limitations"

Tr. vychisl. tsentra. Tartus. un-t (Works of the Computing Center. Tartu University), 1971, vyp. 22, pp 25-34 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V423)

Translation: Gomori's third algorithm is considered (using the notation followed in RZh-Mat, 1969, 12V435K). It is shown that the algorithm can be generalized to problems with bilateral limitations. By introducing an artificial basis, this generalization can also be used to solve problems for which a whole-number basis pseudoplan is unknown. Yu. Finkel'shteyn.

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USSR

UDC 517.946

KHIYIRBEKOV, T. E.

"Uniqueness of the Singular Hellerstadt Problem for an Equation of the Mixed Type"

V sb. Materialy Itog. nauchn. konferentsii. Kuybyshev. gos. ped. in-t, 1970, Vyssh. matematika (Papers. Summation of Scientific Conference. Kuybyshev State Pedagogical Institute, 1970. Higher Mathematics -- Collection of Works), Kuybyshev, 1970, pp 51-52 (from RZh-Matematika, No 4, Apr 71, Abstract No 4B405)

Translation: Let the numbers $p_1, p_2 \in \mathbb{R}$ be given and D be a region bounded by the Oy axis, the lines $L_1: x + y = 0$ and $L_2: x - y - 1 = 0$, and a quarter of the surface $S: x^2 + y^2 = 1 (x > 0, y > 0)$. The function $\beta(x)$ is given for $0 < x < 1$, $\psi(x)$ is given for $1/2 \leq x \leq 1$, and ϕ is given on S , $p(y) = p_1(1 + \operatorname{sgn} y) + p_2(1 - \operatorname{sgn} y)$. The uniqueness of the classical solution of the problem

$$u_{xx} + \operatorname{sgn} y \cdot u_{yy} + \frac{2}{x} u_x + \frac{p(y)}{y} u_y = 0 \text{ in } D \setminus (y=0),$$

$$u|_S = \phi, u|_{L_2} = \psi(x) \ (1/2 \leq x \leq 1), u(0, 0) = 0,$$

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